



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,084	05/22/2006	Stefan Langenbuch	64726(45710)	5853
21874 7590 06/25/2009 EDWARDS ANGELL PALMER & DODGE LLP P.O. BOX 55874 BOSTON, MA 02205				
EXAMINER				
TSE, YOUNG TOI				
ART UNIT		PAPER NUMBER		
2611				
MAIL DATE		DELIVERY MODE		
06/25/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/563,084

Applicant(s)

LANGENBACH ET AL.

Examiner

YOUNG T. TSE

Art Unit

2611

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4-13, 15-24, 26 and 27 is/are rejected.
- 7) ☒ Claim(s) 1-27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 May 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB-08)
- Paper No(s)/Mail Date 20060228
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered. See paragraphs [0007], [0010], [0012], [0013], [0018], [0019], [0021], [0024], [0026], [0027], [0029], [0030], [0080], [0083], [0084], [0089], [0092], and [0098].
3. The information disclosure statement filed on February 28, 2006 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Specification

4. The disclosure is objected to because of the following informalities: paragraph [0103], the underlines should be deleted. Appropriate correction is required.
5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Drawings

6. Figure 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

7. Claims 1-27 are objected to because of the following informalities:
Claim 1, line 8, "a branch metrics" should be "branch metrics"; and line 9, "digital words" should be "the digital words".

Claim 2, line 5, "of plurality" should be "of a plurality".

Claim 4, lines 2 and 4, "an even" should be "even" in consistent with other dependent claims; line 4, "a sequence" should be "the sequence"; line 6, "metrics" should be "metric".

Claim 5, line 1, "a first and a second" should be "a first sampling time and a second"; line 6, "a first digital" should be "the first digital"; line 7, "a sequence" should be "the sequence"; lines 15-16, "a third and fourth digital word" should be "third and fourth digital words"; line 17, "third digital" should be "the third digital"; and line 19, "a sequence" should be "the sequence".

Claim 6, line 1, "a first and a second" should be "a first sampling time and a second"; line 6, "a first digital" should be "the first digital"; line 7, "a sequence" should be "the sequence"; lines 17-18, "a third and fourth digital word" should be "third and fourth digital words"; line 19, "a second" should be "the second"; line 20, "a coarse" should be "the coarse"; and lines 21-22, "a sequence" should be "the sequence".

Claim 7, line 6, "each channel" should be "each first channel"; and lines 6 and 12, "a sequence" should be "the sequence".

Claim 8, line 2, "combining" should be "combination".

Claim 13, line 3, "a symbol" should be "the symbol".

Claim 14, lines 2 and 7, " $(k+1)$ " should be " (k) "; line 4, " (k) " should be " $(k-1)$ "; line 5, "branch" should be "the branch"; and line 6, " $(k+2)$ " should be " $(k+1)$ ".

Claim 15, line 2, “(k+2)” should be “(k+1)”; lines 3-4, “the current” should be “a current”; line 4, “(k+1)” should be “(k)”; line 5, “the previous” should be “a previous”; and line 7, “(k+1)” should be “(k)”.

Claim 16, line 2, "(k+2)" should be "(k+1)"; line 4, "the previous" should be "a previous"; line 4, "(k)" should be "(k-1)"; and line 6, "(k)" should be "(k-1)".

Claim 17, lines 2-3, "may be represented" should be "represent"; line 4, "states" should be "state"; and line 5, "i.e." should be "i.e. " .

Claim 18, lines 2-3, “may be represented” should be “represent”.

Claim 19, lines 11 and 12, “predetermined” should be “a predetermined”.

Claim 21, line 1, “a first and a second” should be “a first sampling line and a second”; line 7, “a sequence” should be “the sequence”; line 15, “a branch” should be “the branch”; lines 15-16, “a third and fourth digital word” should be “third and fourth digital words”; line 17, “third digital word and a second” should be “the third digital word and the second”; and line 19, “a sequence” should be “the sequence”.

Claim 22, line 2, "(k+2)" should be "(k+1)"; lines 3-4, "the current" should be "a current"; line 4, "(k+1)" should be "(k)"; line 5, "the previous" should be "a previous"; and line 6, "(k)" should be "(k-1)".

Claim 23, line 2, "a channel" should be "the channel"; and line 5, "i.e." should be "i.e.,".

Claim 24, lines 2-3, “) the signal” should be “), the analog signal”; and line 13, “digital words” should be “the digital words”.

Claims 9-12 and 20 are either directly or indirectly depended on claim 1.

Claim 3 depends on claim 2.

Claims 26 and 27 depend on claim 24.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1, 4-13 and 15-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, lines 3 and 9, "($r_{i,1}$, $r_{i,2}$)" is inconsistent with each other, one for "one digital word" and other one is for "digital words". Also see claims 7, 24 and 25.

Claim 5, lines 10 and 11, the claimed subject matter is unclear from the claim. Also see claim 21.

Claim 8 (line 3), claim 13 (line 2), claim 15 (lines 2 and 4-5), claim 16 (line 1), claim 19 (line 3), claim 20 (line 2), claim 22 (lines 1 and 3), and claim 23 (lines 4 and 6), the phrases "the count", "said clock", "the channel states", "the channel state", "the logarithm of the respective count", "the branch metrics", "the physical interface", and "the values" all lack antecedent basis.

Claim 19, lines 8 and 16, it is unclear what about or what to do with the "following cases"?

Claims 4, 6-7, 9-12 and 17-18 are either directly or indirectly depended on claim 1.

Claims 26 and 27 depend on claim 24.

Claim Rejections - 35 USC § 101

10. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1, 4-13, 15 and 17-20 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Supreme Court precedent¹ and recent Federal Circuit decisions² indicate that a statutory “process” under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. While the instant claim(s) recite a series of steps or acts to be performed, the claim(s) neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process. For example, the independent method claim 1 including steps of digitizing, determining, providing, and obtaining is of sufficient breadth that it would be reasonably interpreted as a series of steps completely performed mentally, verbally or without a machine.

1 Diamond v. Diehr, 450 U.S. 175, 184 (1981); Parker v. Flook, 437 U.S. 584, 588 n.9 (1978); Gottschalk v. Benson, 409 U.S. 63, 70 (1972); Cochrane v. Deener, 94 U.S. 780, 787-88 (1876).

2 IN re Bilski, 88 USPQ2d 1385 (Fed. Cir. 2008).

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

12. Claim 1 is rejected under 35 U.S.C. 102(a) as being anticipated by Hayami (US 6,477,125).

Regarding claim 1, Hayami discloses a receiver, for example, shown in Figure 1 comprises an A/D converter 18 for digitizing an analog signal representing a sequence of symbols thereby associating one digital word out of a plurality of possible digital words to the level of the analog signal at each sampling time, a symbol period having at least two sampling times, such as well known Nyquist sampling rate which is at least twice the input sampling rate, each digital word corresponding to one out of a plurality of quantization levels; and a Viterbi decoder 19 (see Figure 12) for determining the most likely sequence the symbols, providing branch metrics, and obtaining the branch metrics from frequencies of the digital words resulting from the digitizing and the symbols of the most likely sequence.

Allowable Subject Matter

13. Claims 2-3, 14, 16 and 21-27 would be allowable if rewritten or amended to overcome the objection(s) set forth in this Office action.

14. Claims 16, 21-24 and 26-27 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Fujiwara et al. relates to an optical disk unit that adjust sampled values, in sampling a signal reproduced from a recording medium recorded with data, the frequencies of the levels of quantized data are counted, a histogram of the frequencies of the levels is created based on the counting results, and more accurate reproduced data is obtained by means of a distribution of the frequencies of the levels in the histogram.

Hamada et al. relates to a clock adjustment apparatus for adjusting a phase of a clock signal based on a phase error thereof is provided in a data reproduced medium which samples a readout signal from a recording medium in synchronism with the clock signal, and reproduces data in accordance with a Viterbi algorithm by using sampled values of the readout signal.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YOUNG T. TSE whose telephone number is 571- 272-3051. The examiner can normally be reached on Monday-Friday 10:00-6:30 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on 571- 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/YOUNG T. TSE/
Primary Examiner, Art Unit 2611